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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,939	12/15/2006	Dominique Loubinoux	26218	7533
22880	7590	09/15/2010		
OWENS CORNING 2790 COLUMBUS ROAD GRANVILLE, OH 43023			EXAMINER JUSKA, CHERYL ANN	
			ART UNIT 1786	PAPER NUMBER
			NOTIFICATION DATE 09/15/2010	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USIPDEPT@owenscorning.com

### Office Action Summary

**Application No.**

10/577,939

**Applicant(s)**

LOUBINOX, DOMINIQUE

**Examiner**

Cheryl Juska

**Art Unit**

1786

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-24, 34-38, 40, 42-44 and 48-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-24, 34-38, 40, 42-44 and 48-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 12, 2010 has been entered.

### ***Response to Amendment***

2. Applicant's amendment filed with the RCE has been entered. Claims 17, 34, and 42 have been amended as requested. Claims 1-16, 25-33, 39, 41, and 45-47 have been cancelled, while new claims 48-54 have been added. Thus, the pending claims are 17-24, 34-38, 40, 42-44, and 48-54.

3. Said amendment is sufficient to withdraw the 112, 1<sup>st</sup> and 2<sup>nd</sup> rejections set forth in sections 2-8 of the last Office Action (Final Rejection mailed 04/14/2010).

### ***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 42-44 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2001/0032696 issued to Debalme et al.

Applicant has amended independent claim 42 to limit the mat to comprising a first reinforcing yarn and a second thermoplastic yarn, wherein the first and second yarns are a combination of chopped yarns and continuous yarns.

Debalme discloses a method of making a composite product comprising reinforcing fibers, such as glass fibers, and thermoplastic organic fiber (abstract and section [0001]). The composite product is made by depositing at least 80% by weight of commingled yarns of blended glass fibers and thermoplastic fibers (sections [0013] and [0016]). Debalme teaches various embodiments of the inventive mat including (i) a knit or woven fabric of the commingled threads, (ii) a nonwoven mat of chopped commingled threads, (iii) a nonwoven mat of continuous filament commingled threads forming superposed loops, and (iv) a composite of at least one layer of a knit or woven fabric and at least one layer of a nonwoven fabric of the chopped or continuous threads (sections [0020] - [0024]). In one embodiment, the chopped fibers may have a length of 38 mm (section [0089]). The yarns of the reinforcing fibers and thermoplastic fibers are bonded together by means of heat and compression (abstract and section [0014]). The glass reinforcement content of the mat is more than 40% of the total weight, preferably 60% by weight (sections [0085], [0093], and claim 1).

Thus, claims 42-44 are anticipated by Debalme since the reference teaches mats may be made by a combination of chopped and continuous yarns. Specifically, a mat formed of a woven layer made from continuous filaments and a chopped fiber nonwoven layer reads on claim 42 (sections [0087] and [0091]). Additionally, a mat including a layer of chopped fiber nonwoven and a layer of a continuous looped filament nonwoven anticipates claim 42 (sections [0040] - [0047]).

***Claim Rejections - 35 USC § 102/103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claim 48 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the cited Debalme reference.

New claim 48 limits the mat of claim 42 to having a porosity of 65-85%. Although the reference does not explicitly teach the porosity property, it is reasonable to presume that said property is inherent to the invention. Support for said presumption is found in the use of similar materials (i.e., mat formed of web of a combination of chopped and continuous first reinforcing yarns and second thermoplastic yarns) and in the similar production steps (i.e., depositing the yarns into a web and bonding said web into a coherent mat) used to produce the mat. The burden is upon applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 495. In the alternative, the claimed porosity would obviously have been provided by the process disclosed by Debalme. Note *In re Best*, 195 USPQ 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102. Thus, claim 48 is rejected as being anticipated by or obvious over the cited prior art.

***Claim Rejections - 35 USC § 103***

8. Claims 17-24 are rejected under 35 U.S.C. 103(a) as obvious over US 2001/0032696 issued to Debalme et al. alone or in view of WO 02/070806 issued to Loubinoux. [Note US 7,226,518 is an English language equivalent of WO 02/070806.]

Applicant has amended claim 17 to limit the mat weight to 1500-3000 g/m<sup>2</sup>. While the Non-Final Office Action mailed July 27, 2009, stated Debalme failed to teach a basis weight of the mat of at least 700 g/m<sup>2</sup>, the reference does indeed teach exemplary basis weights. Specifically, as noted above, Debalme teaches various embodiments of the inventive mat comprising (i) a knit or woven fabric of the commingled threads, (ii) a nonwoven mat of chopped commingled threads, (iii) a nonwoven mat of continuous filament commingled threads, and (iv) a composite of at least one layer of a knit or woven fabric and at least one layer of a nonwoven fabric of the chopped or continuous threads (sections [0020] - [0024]). In a working example of a composite sandwich comprising two woven fabric layers sandwiching a chopped nonwoven layer, each woven fabric has a basis weight of 650 g/m<sup>2</sup> and the chopped nonwoven layer has a basis weight of 2800 g/m<sup>2</sup> (sections [0086] - [0090]). The final bonded composite has a basis weight of about 4200 g/m<sup>2</sup> (section [0091]).

Thus, it would have been obvious to a skilled artisan to select a mat consisting of a single layer having a weight within the range claimed or a composite mat having a weight within the range claimed. Determination of an appropriate basis weight for the final mat product would be within the level of ordinary skill in the art. An increase or decrease in weight would yield predictable results to said skilled artisan (e.g., corresponding changes in thickness, dimensional stability, cost, etc.) It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215. Thus, claims 17-24 are rejected as being obvious over the cited Debalme reference alone.

In the alternative, the claims are rejected over Debalme in view of Loubinoux. Specifically, Loubinoux teaches a like composite mat comprising reinforcing threads and organic

(i.e., thermoplastic) threads (abstract). Said composite mat has a basis weight of 500-3000 g/m<sup>2</sup> (Loubinoux '518, col. 2, lines 18-23). Thus, it would have been readily obvious to one of ordinary skill in the art to produce a mat according to Debalme having a basis weight within the range presently claimed, based upon the teachings of Loubinoux. Such a modification of Debalme would have yielded predictable results to a skilled artisan. Therefore, claims 17-24 are rejected over the Debalme reference in view of the Loubinoux reference.

9. Claims 34-38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the cited Debalme reference in view of US 2005/0118390 issued to Wagner et al. or US 6,407,018 issued to Zafiroglu. (See last Office Action, section 18.)

Applicant has amended claim 34 to limit the reinforcement substance in the form of a first yarn to consisting of reinforcement fibers and the thermoplastic substance in the form a second yarn to consisting of thermoplastic fibers, wherein the mat is formed of said first and second yarns. However, said amendment is insufficient to overcome the standing rejection. Specifically, while applicant claims the mat is *formed of* the first and second yarns, the process of forming said mat (e.g., weaving the first and second yarns together) or the final mat construction (e.g., woven from the first yarn in the warp direction and the second yarn in the weft direction) are not limited. As such, the claim does not exclude the first and second yarns to being commingled before forming the mat. Thus, Debalme's mat made from commingled yarns renders the present claims obvious.

[In the event that the claims are amended to positively limit the final product to being constructed of said first yarns and second yarns, excluding the commingled yarns of the Debalme invention, the claims are still held to be obvious over the prior art. Note Debalme teaches prior

art fiberglass reinforced composites comprise a combination of glass fiber yarns and thermoplastic yarns (section [0002]). Specifically, Debalme teaches it is known to form a composite from fabrics woven of yarns consisting of reinforcing fibers and yarns consisting of thermoplastic fibers (section [0003]). See also GB 2093768, an English language equivalent of FR 2500360 cited by Debalme. Hence, in the event the claims exclude commingled yarns, the claims would likely still be found obvious over the prior art.]

For the record, regarding the stitchbonded limitation, while the reference fails to teach stitchbonding the web to bind the mat, it would have been readily obvious to a skilled artisan. Specifically, stitchbonding is a well known method of integrating a web, including fiberglass-based webs, to enhance the mat's dimensional stability. See Wagner, which teaches glass strand stitchbonded mats, and Zafiroglu, which teaches stitchbonding nonwoven fabric suited for thermoforming operations. As such, one skilled in the art would be motivated to employ stitchbonding in order to enhance the dimensional stability thereof. Additionally, it would have been obvious to employ a binder yarn finer than the yarns of the mat in order to minimize the bulkiness of said stitchbonding and to enable a finer stitch density which would further enhance the dimensional stability thereof. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215. Therefore, claims 34-37 and 40 are rejected as being obvious over the prior art.

Regarding claim 38, it is reasonable to presume that the properties of elongation and porosity are met by the teachings of the prior art. Support for said presumption is found in the use of similar materials (i.e., mat formed of web of commingled yarns of a reinforcing glass fiber and a thermoplastic fiber) and in the similar production steps (i.e., depositing the yarns into a



web and stitchbonding said web into a coherent mat) used to produce the mat. The burden is upon applicant to prove otherwise. Thus, claim 38 is rejected as being obvious over the cited prior art.

10. Claims 49, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over the cited Debalme reference in view of WO 02/070806 issued to Loubinoux. [Note US 7,226,518 is an English language equivalent of WO 02/070806.]

Debalme fails to teach bonding layers of the composite mat by water jets, needle punching, or adhesive. However, as noted above, Loubinoux teaches a like composite mat wherein the layers of the mat are bonded by means of pressurized water jets, needling, or adhesive (Loubinoux '518, col. 4, line 48-col. 5, line 38). Thus, it would have been obvious to a skilled artisan to bond the layers of the multilayered Debalme composite mat in order to enhance the delamination strength of said composite mat. Hence, claims 49, 51, and 52 are rejected.

11. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over the cited Debalme reference.

Regarding claim 50, it is asserted the method of bonding by corona discharge is given patentable weight only to the extent that it affects the structure of the final product. Specifically, the method of bonding corona discharge effects thermal bonding of the thermoplastic material. As such, the limitation is not given patentable weight other than to produce thermal bonding. Note Debalme bonds the layers thermally. Hence, claim 50 is also rejected as being obvious over the prior art.

12. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over the cited Debalme reference alone or in view of WO 02/070806 issued to Loubinoux. [Note US 7,226,518 is an English language equivalent of WO 02/070806.]

New claim 53 limits the mat to having a basis weight of 1500-3000 g/m<sup>2</sup>. As argued above, it would have been obvious to a skilled artisan to select a mat consisting of a single layer having a weight within the range claimed or a composite mat having a weight within the range claimed. Determination of an appropriate basis weight for the final mat product would be within the level of ordinary skill in the art. An increase or decrease in weight would yield predictable results to said skilled artisan (e.g., corresponding changes in thickness, dimensional stability, cost, etc.) It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215. Thus, claim 53 is rejected as being obvious over Debalme alone.

In the alternative, the claims are rejected over Debalme in view of Loubinoux. Specifically, Loubinoux teaches a like composite mat comprising reinforcing threads and organic (i.e., thermoplastic) threads (abstract). Said composite mat has a basis weight of 500-3000 g/m<sup>2</sup> (Loubinoux '518, col. 2, lines 18-23). Thus, it would have been readily obvious to one of ordinary skill in the art to produce a mat according to Debalme having a basis weight within the range presently claimed, based upon the teachings of Loubinoux. Such a modification of Debalme would have yielded predictable results to a skilled artisan. Therefore, claim 53 is rejected over the Debalme reference in view of the Loubinoux reference.

13. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over the cited Debalme reference in view of US 2005/0118390 issued to Wagner et al. or US 6,407,018 issued to Zafiroglu.

Regarding new claim 54, while the reference fails to teach stitchbonding the web to bind the mat, it would have been readily obvious to a skilled artisan. Specifically, stitchbonding is a well known method of integrating a web, including fiberglass-based webs, to enhance the mat's dimensional stability. See Wagner, which teaches glass strand stitchbonded mats, and Zafiroglu, which teaches stitchbonding nonwoven fabric suited for thermoforming operations. As such, one skilled in the art would be motivated to employ stitchbonding in order to enhance the dimensional stability thereof. Additionally, it would have been obvious to employ a binder yarn finer than the yarns of the mat in order to minimize the bulkiness of said stitchbonding and to enable a finer stitch density which would further enhance the dimensional stability thereof. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215. Therefore, claim 54 is rejected as being obvious over the prior art.

#### ***Response to Arguments***

14. Applicant's arguments filed with RCE have been fully considered but they are not persuasive.

15. Regarding the rejection of claims 17-24, applicant traverses by arguing the Debalme reference does not teach or suggest the claimed mat basis weight (Amendment, page 8, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs). Specifically, applicant asserts the claimed weight corresponds to particular

thicknesses, wherein the prior art has a thickness less than the present invention. This argument is unconvincing since applicant does not limit the thickness in the claims. Hence, applicant's argument is not commensurate in scope with the claims.

16. Additionally, applicant asserts the fabrics of Debalme have a basis weight of only 650 g/m<sup>2</sup> (Amendment, page 8, 2<sup>nd</sup> paragraph). Yes, as discussed above, Debalme exemplifies a woven fabric layer for use in the multilayer composite mat having said basis weight. However, the reference also teaches the chopped fiber layer of said multilayer composite mat has a basis weight of 2800 g/m<sup>2</sup>, which is within applicant's claimed range of 1500-3000 g/m<sup>2</sup>. Thus, contrary to applicant's argument (Amendment, paragraph spanning pages 8-9 – page 9, 2<sup>nd</sup> paragraph), the prior art does suggest the claimed basis weight as set forth above.

17. Regarding the rejection of claims 34-38 and 40, applicant traverses the rejection by asserting independent claim 34 excludes the Debalme embodiment of commingled yarns (Amendment, paragraph spanning pages 10-11 – page 11, 3<sup>rd</sup> paragraph). This argument is unpersuasive since, as explained above, the claims are not commensurate in scope with said argument. Additionally, as noted above, even if the claims were commensurate in scope, the claims would likely still be held obvious over the prior art.

18. Regarding the rejection of claims 42-44, applicant asserts the present claims are distinguished from the prior art in that the reference “does not, however, teach or suggest an embodiment that includes a combination of chopped and continuous yarns to form a mat as is required by claim 42” (Amendment, page 12, 2<sup>nd</sup> paragraph). The examiner respectfully disagrees as set forth above. Note applicant's claims do not exclude an embodiment wherein the mat comprises chopped yarns in one layer and continuous yarns in another layer or an

embodiment where the nonwoven layers are combined woven layers. Thus, applicant's argument is unpersuasive.

***Conclusion***

19. The art made of record and not relied upon is considered pertinent to applicant's disclosure.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheryl Juska whose telephone number is 571-272-1477. The examiner can normally be reached on Monday-Friday 10am-6pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner can be emailed at [cheryl.juska@uspto.gov](mailto:cheryl.juska@uspto.gov) or the examiner's supervisor, D. Lawrence Tarazano can be reached at 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

21. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*/Cheryl Juska/*  
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Art Unit 1786